A NEW SPECIES OF DEROVATELLUS FROM GUATEMALA AND A DESCRIPTION OF ITS LARVA (COLEOPTERA: DYTISCIDAE)

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The genus *Derovatellus* in the Western Hemisphere presently includes *D. lentus* (Wehncke), *D. lentus floridanus* Fall and *D. bruchi* Zimmerman. These species are similar in shape and color. *D. lentus* was described from Puerto Rico by Wehncke (1876) and has been reported from the following localities: Santa Rita and Santa Cruz [Brazil] by Sharp (1882); Dominican Republic, Haiti, Trinidad and Colombia by Young (1954). The subspecies D. *lentus floridanus* is known only from Florida, and *D. bruchi* is reported only from the type locality in Argentina.

During the summer of 1965 I collected a series of an interesting *Derovatellus* from Guatemala. The specimens were very similar to those of *D. lentus* that I collected in Puerto Rico but the elytral maculae seemed more distinct. The Guatemalan specimens were also interesting even if they were *D. lentus* and not a new species because they represented the first record of the genus from Central America. When I compared the Guatemalan specimens with those from Puerto Rico, I found that the Guatemalan series did indeed represent a new species. The species is described below and is dedicated to my friend Dr. Jorge Ibarra, Founder and Director of the National Museum of Natural History of Guatemala. Dr. Ibarra kindly helped me in many ways during my field activities in Guatemala and made my collecting there much more fruitful.

This new species is very similar to *D. lentus* (figs. 7-12) but may be distinguished from it by the alutaceous sculpture of head restricted to the area behind the posterior margin of the eyes, by the moderately coarse and sparse pronotal punctures, by the very fine, almost indistinguishable elytral punctures and by differences in the male genitalia (figs. 4, 5, 6).

Derovatellus ibarri Spangler, NEW SPECIES

(FIGS. 1-6)

Length of holotype male, 4.0 mm., greatest width 1.8 mm. Color of head testaceous; pronotum testaceous except small fuscous basal area; elytra black except for three transversely arranged, testaceous, postmedian maculae and another macula laterad along apical margin on each elytron; venter dark reddish brown except last abdominal segment lighter brown; antennae, mouthparts and legs testaceous. Head finely, sparsely punctate and faintly alutaceous between eyes and pronotum; punctures very fine and sparse on clypeus; clypeus curved downward and backward and arcuately emarginate; labrum finely sparsely punctate, deeply emarginate medially and dense fringe of golden setae in emargination. Antenna 11-segmented; basal and ultimate segments largest, subequal; second segment slightly

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shorter than first segment; third segment small, about two-thirds as long as second segment; fourth segment smallest, about one-third as long as second segment; additional segments subequal in length. Maxillary palpus four-segmented, basal two segments subequal in length; ultimate segment largest, swollen and longer than basal three combined. Labial palpus three-segmented, basal two segments small, subequal; ultimate segment swollen and four times longer than penultimate segment.

Pronotum moderately coarsely, moderately densely punctate; punctures on disk separated by a distance almost equal to their width and each puncture bears a long, fine golden hair; lateral punctures denser than those on disk; surface smooth between punctures or at most vaguely alutaceous; lateral margin arcuate but not forming continuous arc with elytra; finely, evenly margined laterally; base bisinuate; anterolateral angles produced anteriorly; posterolateral angles obtuse. Prosternum with process narrow between procoxae but expanded and three times wider behind coxae; expanded posterior portion with distinct longitudinal ridge in posterior half; process not attaining metasternum.

Elytra finely, sparsely punctate; punctures separated by a distance equal to twice their width and each with a long, fine golden hair; surface between punctures with vague, transverse strigae. Scutellum not visible.

Ventral surface of metathorax alutaceous; with coarse, shallow, sparse punctures; punctures separated by one or one and a half times their width; metasternal wings very short and feebly curved posteriorly; metacoxal processes diverge anteriorly, converge and then expand posteriorly, conjointly emarginate medially and sulcate longitudinally.

Abdominal segments with surface alutaceous. First abdominal segment with two indefinite rows of coarse punctures, one medial and one along hind margin; second and third segments twice as long as first segment, with numerous coarse punctures separated by a distance equal to one or one and a half times their width; fourth and fifth segments each with coarse median puncture bearing a tuft of long setae and each with a transverse row of coarse punctures along anterior and posterior margins of segments and few punctures scattered between rows; last abdominal segment with a few coarse punctures laterally and medially, a flattened tonguelike medial process with short golden setae on hind margin at apex (difficult to distinguish on dry specimens but indicated by marginal groove and golden setae).

Legs smooth. Proleg with coxa globular; trochanter about one-fifth as long as femur and with small tuft of golden pubescence beneath at apex; femur swollen, almost parallel sided in basal two-thirds, feebly notched below at apex and short fringe of golden hairs in notch; tibia slender, inner margin almost straight, outer margin arcuate, upper surface with a longitudinal series of coarse seta-bearing punctures on distal half; tarsus five-segmented but appears tetramerous; first and second tarsal segments expanded, notched apically, subequal in size and both with dense pubescent pad beneath; third tarsal segment slightly longer than second, about half as wide and with pubescent pad beneath; fourth tarsal segment very small and hidden in notched apex of third segment; last tarsal segment about as long as third, with two small arcuate claws apically. Middle leg with coxa globular; trochanter about one-fifth as long as femur and densely pubescent beneath at apex; femur narrower than profemur and almost parallel sided, ventral surface with dense tuft of hairs along basal three-fifths; tibia similar to protibia but upper surface with striole on distal three-fifths bearing dense row of short golden setae; tarsal segments similar to those of protarsus. Hind leg with trochanter slightly more than one-third as long as metafemur; femur almost parallel sided but tapered distally; tibia slender, feebly arcuate, with several rows of coarse seta-bearing

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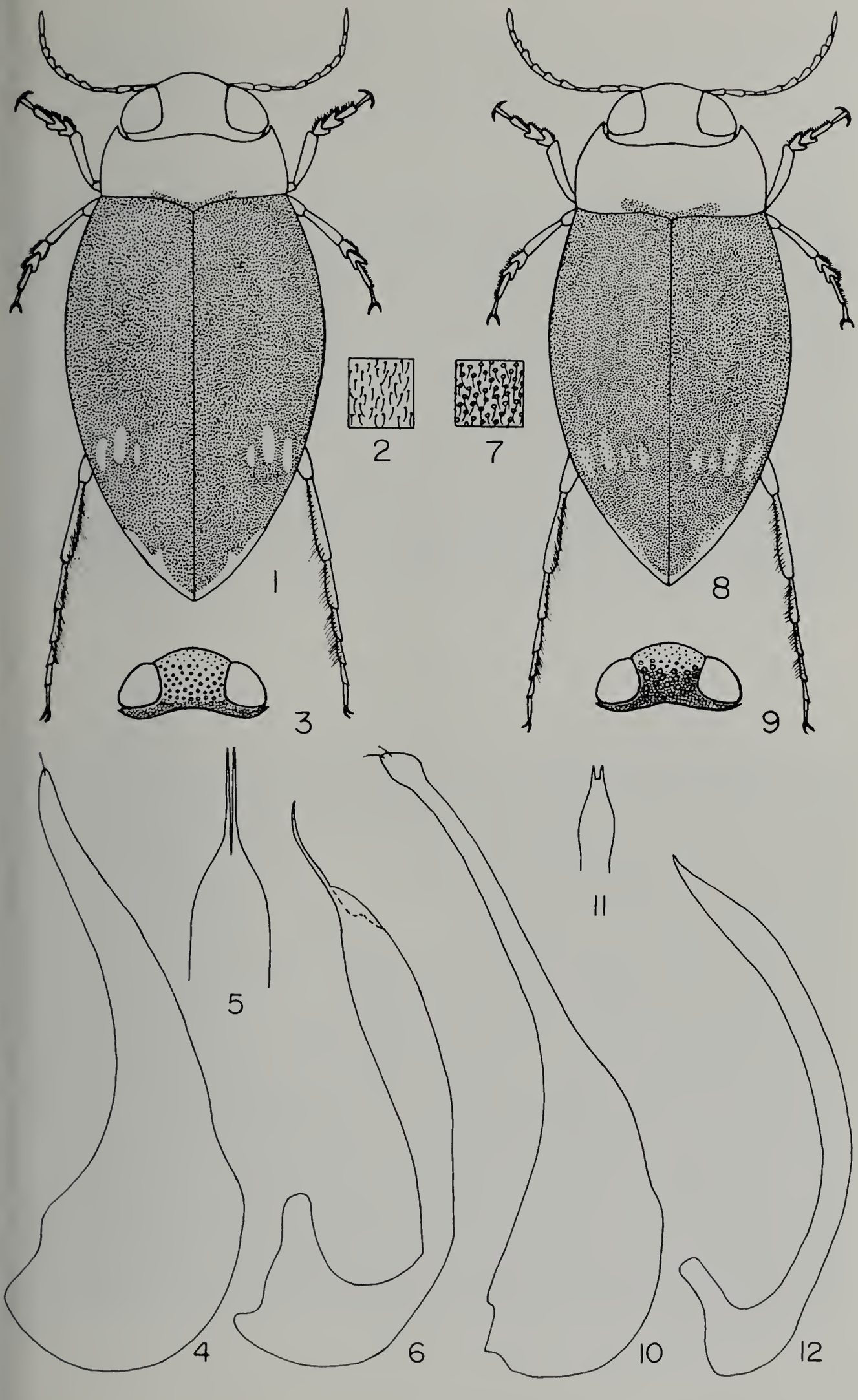
FIGURES 1-6, *Derovatellus ibarrai* n. sp., holotype. 1—Habitus view. 2—Punctation, elytral disk. 3—Head, punctures and alutaceous sculpture. 4—Right paramere, male genitalia. 5—Apex of median lobe, male genitalia, ventral view. 6—Median lobe, male genitalia, lateral view.

FIGURES 7-12, *Derovatellus lentus* (Wehncke). 7—Punctation elytral disk. 8—Habitus view. 9—Head, punctures and alutaceous sculpture. 10—Right paramere, male genitalia. 11—Apex median lobe, male genitalia, ventral view. 12—Median lobe, male genitalia, lateral view.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punctures on upper and lower margins, a fringe of golden natatory hairs on lower surface and two spurs at apex, outer spur twice as long as inner spur; tarsal segments slender, first segment longest, twice as long as second segment; second, third and last segments subequal in length; fourth segment slightly shorter than third segment; tarsal claws short, thick and blunt apically, inner claw almost twice as long as outer claw; all five tarsal segments with fringe of golden natatory hairs. Male genitalia as illustrated (figs. 4, 5, 6).

Female. Allotype similar to male except basal two segments of pro- and mesotarsus not broadly expanded, trochanters of fore and middle legs and ventral surface of mesofemur without dense tuft of golden setae.

Holotype. Guatemala, [Izabal] 1 Mi. N. Morales (Km. 239, Atlantic Hwy.), VIII-16-18-1965, Paul J. Spangler. Type No. 68918, deposited in the U. S. National Museum. *Allotype.* Same data as holotype. *Paratypes.* 12 ♂ ♂, 28 ♀ ♀, same data as holotype. One pair deposited in the California Academy of Sciences and one pair in the collection of Dr. Frank N. Young.

Variations. The type series varies in the size of the testaceous elytral maculae. In some specimens, there are four instead of three transverse postmedian maculae on each elytron, and the lateral macula along the apical margin is larger and more distinctly delimited. In a few specimens, the postmedian maculae are confluent and form a distinct transverse band. The alutaceous sculpture on the base of the head is less distinct on some specimens and especially on those that are teneral.

Key to the Species of Derovatellus

1. Size 5.0 mm.; sides of pronotum strongly rounded and widest at midlength then distinctly constricted at base; Argentina----------**BRUCHI** Zimmerman
   Size less than 4.1 mm.; sides of pronotum moderately arcuate and widest at base, not constricted at base---------- 2
2. Punctures of elytral disk fine (fig. 2); alutaceous sculpture of head restricted to area behind eyes (fig. 3); apex of median lobe of male genitalia with two long needlelike projections (fig. 5); Guatemala----------**IBARRAI** n. sp.
   Punctures of elytral disk coarse (fig. 7); alutaceous sculpture of head more extensive, occurring posteriorly from midlength of eyes (fig. 9); apex of median lobe of male genitalia with two short spinous projections (fig. 11)---------- 3
3. Size 3.5 mm.-4.0 mm.; Antilles and South America----------**LENTUS LENTUS** (Wehncke)
   Size 3.9 mm.-4.1 mm.; Florida----------**LENTUS FLORIDANUS** Fall

Habitat. On Aug. 16, 1965, a single specimen of *Derovatellus* was found after about a half hour of collecting among emergent vegetation in the shallow water of a small pond (fig. 13) in a pasture. On Aug. 18, 1965, I returned to the same pond to look for more specimens of *Derovatellus* and collected for 4 hours. During the first 3 hours, no *Derovatellus* were found as I collected in the pond at the water's edge and I began searching for other habitat niches. Adjacent to the pond in dense grass there were depressions containing water less than 3 inches deep. In these depressions (fig. 14) and in nearby water-filled hoof prints, I was able to collect 41 specimens of *Derovatellus* within an hour.

A close lookout was kept for unusual larvae that might be *Derovatellus* because the larva of this genus was unknown. Fortunately, a single, distinctive larva closely resembling the larva of *Macrovatellus* was found and is described below.

This larva was not reared to confirm its identity, but it is assumed to be correctly identified through association, elimination of known larvae,

FIGURE 13, Pond at type locality near Morales, Izabal, Guatemala.

FIGURE 14, Habitat niche beside pond at type locality.

and similarity to the larva of *Macrovatellus mexicanus* Sharp described by Spangler (1963). The larvae of *Derovatellus* and *Macrovatellus* have the elongate nasale and are as distinct from larvae of other dytiscid genera as the adults. *Derovatellus* and *Macrovatellus* along with a third genus, *Vatellus,* comprise the very distinctive tribe Vatellini. Probably when the larva of *Vatellus* is discovered it also will have the elongate nasale.

Description of the Larva

(Figs. 15-21)

Length 7.5 mm., greatest width of pronotum .85 mm. Color of integument white; dorsal sclerites of thorax and abdomen fusco-testaceous except small, gray, transverse macula laterally on pronotum as illustrated (fig. 18). Head also fusco-testaceous except for spatulate apex of nasale, a spot at base of nasale, along ecdysial cleavage line and its arms and around ocelli cream colored; ventral surface of head and mouthparts more nearly testaceous. Legs white except extreme base of coxae at point of articulation black.

Head subquadrate, slightly narrower posteriorly, with distinctive trifurcate nasale as long as length of head. Median branch of nasale narrow and parallel sided to broadly spatulate apex; dorsal surface glabrous (fig. 19) except spatulate apex with ten fine hairs along anterior margin; ventrolateral surface with two large spines on each side on anterior half; ventrally with group of 20 to 23 small spines directly behind spatulate apex; spatulate apex of nasale margined ventrally with setae as illustrated (fig. 21). Lateral branches of nasale about two-thirds as long as median branch. Each lateral branch of nasale with small Y-shaped fork at apex; five ventrolateral spines. Ecdysial cleavage line united at base and forked at basal third of head; frontal arms curve laterally and terminate between base of nasale and antenna. Dorsal surface of head glabrous except for four or five short stout setae laterally in a line below eye and five or six long hairs around ocular area. Ventral surface of head glabrous except two posterior tentorial pits at about midlength of head. Ocular area with six ocelli in two close vertical rows of three ocelli each. Antenna (fig. 16) four-segmented; second and third segments longest, subequal; ultimate segment smallest, slightly less than half as long as penultimate segment and appendage at base about one-third as long as ultimate segment; segments glabrous. Mandible long, slender, falciform, curved upward and inward apically, grooved along inner surface and a small seta ventrolaterally at base. Maxillary stipes rudimentary. Maxillary palpus (fig. 15) slender, elongate, four-segmented; first and third segments subequal in length; second segment almost twice as long as first segment; ultimate segment slightly more than half as long as penultimate segment; first segment with one long hair anterolaterally, other segments glabrous. Labium small, subrectangular, with one slender hair and two long slender spines apically between palpi (fig. 17); ligula absent; labial palpus very slender, two-segmented.

Pronotum subquadrate, wider basally, with five or six long hairs laterally and a few small setae along hind margin. Mesonotum slightly wider than and half as long as pronotum, with numerous setae along lateral and posterior margins of sclerite and a few setae scattered on disk; a spiracular opening present in pleural region below anterolateral angle of sclerite. Metanotum slightly wider than and about as long as mesonotum; setation similar to mesonotum.

Legs elongate; five-segmented; coxa long; trochanter about one-third as long as coxa; femur as long as tibia and tarsus combined; tarsus with two elongate, slender claws, outer claw slightly shorter than inner claw. Coxa with two short anterolateral setae. Trochanter with three small setae on ventral surface. Femur with four short setae on anterior (upper) surface and two long setae on posterior

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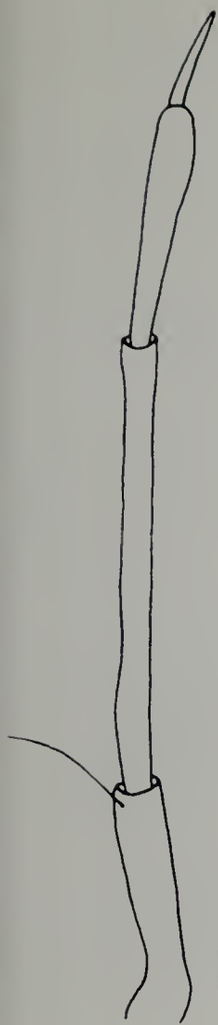
Figures 15-21, *Derovatellus ibarrai* n. sp., larva. 15—Right maxillary palpus, ventral view. 16—Right antenna, dorsal view. 17—Labium, ventral view. 18—Habitus view. 19—Nasale, dorsal view. 20—Abdominal segments 6 and 7, ventral view. 21—Apex of median lobe of nasale, anteroventral view.



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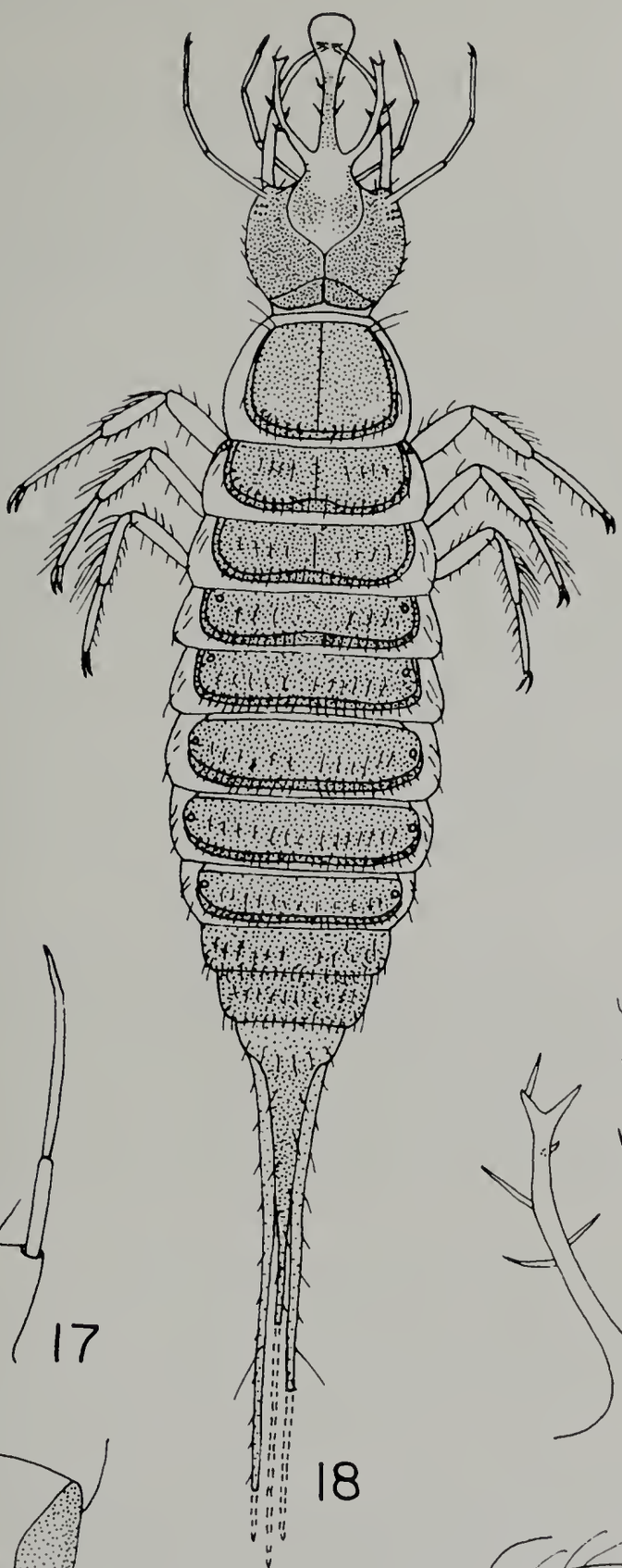

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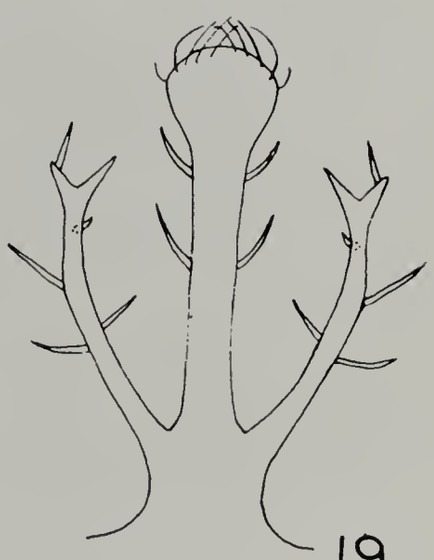

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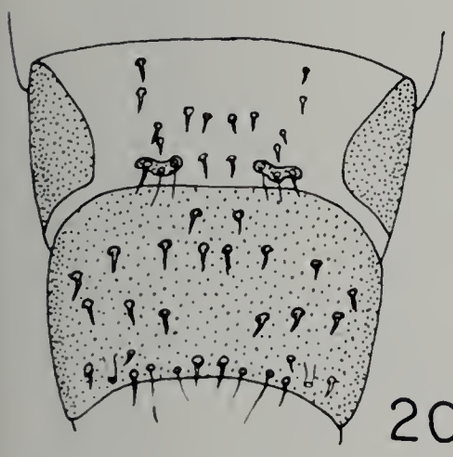

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edge. Tibia with four or five short setae on anterior surface and numerous setae on posterior edge. Tarsus with few setae on anterior surface and numerous setae on posterior edge.

Abdomen with eight distinct segments; segments 1 through 6 with dorsal sclerites; segments 7 and 8 completely sclerotized, ringlike (fig. 20). Terga of segments 1 through 7 with setae on lateral margins, across hind margins, and a few scattered over surface. Segment 8 setose over surface, prolonged posteriorly into a long, slender cercus beneath which arise two cerci of similar shape and color. All cerci are broken but apparently were unsegmented and all have numerous coarse setae throughout their length. Lateral margins of segments 1 through 7 each with a spiracle. Mesopleura, metapleura and pleural folds of segments 1 through 6 each with one to five setae arising from integument.

Although this larva resembles the larva of *Macrovatellus mexicanus,* it differs in the following ways: dorsal surface of median branch of nasale glabrous; each lateral branch of nasale with five ventrolateral spines; second and third antennal segments longest, subequal; ultimate antennal segment slightly less than half as long as penultimate segment; antennal segments glabrous; first and third segments of maxillary palpus subequal in length, second segment almost twice as long as first segment, first segment with one long hair anterolaterally, other segments glabrous.

The following couplet will distinguish the larvae of the two genera.

Second and third antennal segments longest and subequal; ultimate segment smallest, slightly less than half as long as penultimate segment----------DEROVATELLUS

First and third antennal segments longest, subequal; ultimate segment smallest, about one-seventh as long as penultimate segment----------MACROVATELLUS

Literature Cited

Sharp, D.

1882. Haliplidae, Dytiscidae, Gyrinidae, Hydrophilidae, Heteroceridae, Parnidae, Georissidae, Cyathoceridae. Biologia Centrali-Americana, Insecta, Coleoptera 1(2):1-144.

Spangler, P. J.

1963. A Description of the Larva of *Macrovatellus mexicanus* Sharp (Coleoptera: Dytiscidae). Coleop. Bull. 17(4):97-100.

Wehncke, E.

1876. Neue Dytisciden. Stettiner Ent. Zeitung 37:356-360.

Young, F. N.

1954. The Water Beetles of Florida. Univ. Florida Studies Biol. Sci. Ser., V (1): x + 238 pp.

LITERATURE NOTICE

KLUCZE DO OZNACZANIA OWAKOW POLSKI, XII—COLEOPTERA, 24c—STAPHYLINIDAE: EUAESTHETINAE—PAEDERINAE. By A. Szujecki. Polski Zwiazek Entomologiczny, Nr. 48 serii klucyz, pp. 1-74, 202 figs. 1965.—Another in the series of keys to the insects of Poland. Besides keys and illustrations, it has a synonymical checklist of genera and species of the subfamilies concerned.

THE GENERA OF THE CHILOCORINI (COLEOPTERA, COCCINELLIDAE). By E. A. Chapin. Bull. Mus. Comp. Zool. 133(4):227-271, 18 figs. 1965.—A key to and characteristics of the 18 world genera are included in this important paper in a much neglected family. It is hoped that this paper will help stimulate interest in the taxonomy of the Coccinellidae.